

Teaching and Learning Programme

Introduction:

This series of activities is based on the LEGO Mindstorms (both registered trademarks) system. I use the RCX robots for students in years 5 and below and the NXT system for years 6 to 9. This programme is the basis for all year levels I teach, but the following programme is how the work is presented to the upper primary group. I modify the timelines and questions for the other year levels. Students are encouraged to work at their own pace but I generally allow one week (3-4 lessons) for each challenge. Some students take less time- but I use this time frame to ensure that struggling students do not get missed as there is often much discussion happening with the more able students!

Personal Sideline:

There are a large number of resources already written and available 'out there', some of which are excellent. I have found that, for me, there is often a tendency to be sidetracked by some of them and end up with a very sophisticated programme which is out of the reach of most students. However, many of the ideas that have resulted in the programme I use have started from some of these resources and bits and pieces I have picked up during time. To not plagiarise, I would like to acknowledge this fact. Challenge 5 has always been a particular favourite of mine, recently the idea of non standard units and tracing the path came from an excellent maths teacher at a primary school in the Adelaide Hills. Programmes should be organic and change and evolve. The following programme is the one that I have developed and works for me and the students I currently teach.

SACSA Outcomes:

Robotics doesn't fit nicely into a particular strand or level of SACSA, but has outcomes from (at least) maths, science and design and technology. Each challenge has a number of potential outcomes and they will not all be listed for each challenge!

Assessment: Students must present evidence that they have completed each of the challenges before they move on to the next challenge. Students are able to choose how they present their evidence but I encourage the use of digital photography and video as a viable alternative. The reflection and extension questions can form part of the discussion that comprises part of the commentary on the video. Some of the students may wish to pursue editing skills - this is allowed but is not the main focus of the presentation.

For each challenge there are task cards and usually reflection sheets, given to the students. They then work in pairs to complete the task cards and complete and present their evidence and reflection.